

## OurwaterQuality

# Ozonation for oxidation, disinfection

From private domestic wells to public water-purification systems of all sizes, ozonation is playing an increasing role in the oxidation of iron, manganese and sulfide (the “troublesome trio” in water treatment, which are subsequently removed by physical filtration), and in reducing taste and odor problems. Ozonation is also effective at disabling the full spectrum of microbiological contaminants (including the protozoans *Giardia* and *Cryptosporidium*), viruses, and bacteria. Ozonation systems also raise and stabilize the pH of water.

Ozone is a naturally-occurring gas created from oxygen molecules, which are broken into atoms by ultraviolet (UV) light from the sun or the corona discharge during lightning storms. The distinctive “clean rain” smell is a result of nature-produced ozone. (Ozone derives from the Greek word ozein, which means to smell.) Some single oxygen atoms regroup back into diatomic oxygen molecules and some single oxygen atoms will regroup

into loosely-bonded triatomic oxygen, or ozone. As a function of this loose bonding arrangement, ozone is a very strong oxidant and an ideal, chemical-free purification and disinfection agent.

In ozonation systems, ozone is created with an electric discharge field as in the CD-type (corona discharge) ozone generator or by using a UV source. Ozone is an unstable compound that leaves no residue. Its only byproduct is pure oxygen. It must be generated onsite and constantly introduced into the water to be effective.

Ozone has a relatively short half life of about 30 minutes in water, which means that every half hour the ozone concentration is reduced to half its initial concentration. The rate of degradation is a function of water chemistry, pH and water temperature. Ozone dissolves about 12 times more readily in water than pure oxygen, providing far more dissolved oxygen in water than would otherwise be possible.

Ozone has greater disinfection

effectiveness against bacteria and viruses than chlorination; also, chlorination creates harmful byproducts known as trihalomethanes (THMs). The EPA monitors and enforces the levels of THMs in public water supplies. Ozonation prior to chlorination lowers THM formation potential and ozonation is commonly used as pretreatment to eliminate THM precursors.

One of the major disadvantages of ozonation is that it provides no disinfection residual as required under the Safe Drinking Water Act. Because the dissolved ozone will revert to oxygen, municipal plants that use ozonation typically add a small chlorine residual after ozonation to prevent the possibility of the water picking up bacteria in the lengthy distribution system. But if chlorine is added to ozonated water, all the chlorine will be free chlorine, rather than chloramine, or combined chlorine, which forms when the chlorine has not completely oxidized the contaminants



STEPHEN WIMAN

and which imparts the distinctive odor. Chlorine added to ozonated water has nothing to oxidize and therefore becomes free chlorine.

Outside public treatment systems, the main demands for ozonation are in storage cisterns for private wells and for purifying rainwater catchment supplies.

*Stephen Wiman has a background in earth science (Ph.D. in geology) and is the owner of Good Water Company in Santa Fe. He may be reached at 505-471-9036 and [skwiman@goodwatercompany.com](mailto:skwiman@goodwatercompany.com).*

## TheclosingConnection

# New interest in real-estate contracts

With the recent changes in lending requirements, some potential buyers are finding it difficult to obtain adequate loans to finance a home purchase. Thus the popularity of real-estate contracts is being renewed. Real-estate contracts are typically used when a buyer cannot obtain conventional financing or does not have money saved for a down payment. They can also be used when a property is unique and an appraiser cannot locate suitable comparable sales.

Real-estate contracts were used quite a bit 20-plus years ago, but faded once loans were easily obtainable. Current sellers may be unfamiliar with how this contract works and may be reluctant to accept such an offer. However, the process is relatively simple.

### REQUIRED DOCUMENTS

**Real-estate contract** - Outlines the transaction, is notarized and recorded of public record with the county clerk. Contains verbiage “...has the effect of immediately transferring equitable title to

real estate.” This is an important sentence. When recorded, the chain of title stops and restricts the seller from conveying the property to anyone else. If the seller dies or becomes incapacitated, the buyer continues making payments as outlined in the escrow agreement.

**Escrow agreement** - Outlines the escrow company’s duties, buyer’s payment schedule, and how the payments will be disbursed to the seller.

**Warranty deed** - Transfers real property from seller to buyer. This deed is NOT recorded of public record. It is held by the escrow company until all requirements of the real-estate contract and escrow agreement are met. At that time, the deed is recorded of public record and the property becomes wholly-owned by the buyer.

**Special warranty deed** - Transfers real property from buyer back to seller. This deed is NOT recorded of public record, either. It is held by the escrow company and recorded only if the buyer

defaults on his payments. Recording this deed releases the real-estate contract, which was recorded of public record at the beginning or the transaction. The property becomes wholly-owned by the seller once again without contingencies.

### ITEMS NEEDED FROM TITLE COMPANY

**Title search** - Shows current vesting, outstanding liens, property taxes due, applicable association fees, etc. If there are outstanding liens, the buyer may stipulate that the escrow company make the payments directly to the lienholder rather than to the seller. Obviously, this protects the buyer against the seller defaulting on outstanding debits.

**Deeds** - Buyer should review recorded deeds for restrictions tied specifically to that property.

**Declarations, covenants, or restrictions** - Outlines any restrictions linked to the subdivision or development.

If a seller is willing to accept monthly payments, a real-estate contract may be a viable option. A Realtor can be a great



PAULA M. GLOVER

benefit to this process. The Realtors Association of New Mexico has a standardized real-estate contract.

If you have questions, please e-mail me at [Paula.Glover@stewart.com](mailto:Paula.Glover@stewart.com).

*Paula McCarty Glover (505-954-3300) is the president of Stewart Santa Fe Abstract. She serves both as the manager and an escrow officer in Santa Fe and Los Alamos counties. Her career spans the title insurance, lending and agriculture industries.*